

SEAVERNS (J.)

ANNUAL REPORT

—OF—

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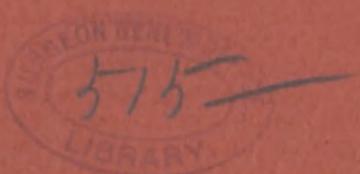
MEDICAL EXAMINER-IN-CHIEF,

—OF—

ROYAL ARCANUM.

1894.

JOEL SEAVERNS, M. D.



SPEEDY



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Syracuse, N.Y.
Stockton, Calif.



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MEDICAL EXAMINER-IN-CHIEF'S REPORT.

To the Officers and Members of the Supreme Council of the Royal Arcanum:

BRETHREN :—I herewith present my report for the year ending December 31, 1891.

During the past year there were received in my office 3,261 applications. Of these 2,302 were approved, 914 rejected, 24 were sent by mistake or to request my opinion as to the advisability of acceptance, and 21 were never completed or for some reason were never acted on. This result sometimes occurs, especially in the formation of new Councils, when an applicant whose application is imperfect in the first place becomes offended or disappointed, or learns that he is likely to be rejected and therefore declines to answer any further questions or to be examined again.

Of the whole number of applications, 3,261, about 75 per cent., 2,441, came from States which had a State Medical Examiner, whilst the remainder, 820, were from States under the jurisdiction of the Supreme Council.

The two classes may be alluded to under the heads of Referred and Original, and the results of the supervision may be stated as follows :

	Total.	Approved.	Rejected.	Not Acted Upon.
Referred,	2,441	1,589	820	32
Original,	820	713	94	13
	3,261	2,302	914	45

From which it appears that whilst about 87 per cent. of the applications sent me originally were approved, only about 65 per cent. of the referred ones were approved. This, of course, is as would be expected, as a large proportion of those sent to me by the State Medical Examiners were of such a character that they would have been rejected by those gentlemen, had the final decision been vested in them.

The total number of applications is less than that of the previous year, because the number in that year was augmented by 2396 applications from New York, sent during the vacation of the State

Medical Examiner of that State, whereas during the last year he performed the duties of his office during the entire year. The State Examiner of Pennsylvania has been absent on account of illness for nearly eight weeks and during that time 155 applications were sent to me; the State Medical Examiner of Wisconsin was also away for six weeks, in which time 16 applications were forwarded to my office and during the eight weeks' absence of the State Medical Examiner of Rhode Island 13 applications were received from that jurisdiction.

The referred applications were sent from the various States as follows:

New York,	508	Maryland,	47
Pennsylvania,	464	Tennessee,	46
New Jersey,	407	North Carolina,	33
Illinois,	191	Minnesota,	32
Massachusetts,	187	Indiana,	26
Missouri,	86	Rhode Island,	26
Ohio,	78	Ontario,	25
Wisconsin,	66	Iowa,	21
Georgia,	59	Nebraska,	14
Virginia,	56	New Brunswick,	9
Michigan,	54	Connecticut,	6
Total,			2,441

The amount of correspondence has not varied greatly from that of the preceding year, but is constantly on the increase. A great part of it is of the merest routine character, carried on for the simple purpose of correcting the errors or omission of the Subordinate Medical Examiners. Much of it is, as has been said in other reports, made up of replies, explanations, and consolation to rejected applicants, and the most interesting and valuable part is that arising from the suggestions and questions of Subordinate and Supervising Medical Examiners, whose views regarding the placing of new restrictions on the admission of applicants, or the modification or removal of old ones indicates the keen interest they have in the successful progress of our work.

The Supreme Secretary reports that a total of 1071 deaths have occurred during the year, and that the average membership having been 118,674, the death-rate per thousand members is 9.02; this rate is a trifle higher than in previous years, a result that may be due to additional deaths from La Grippe.

The deaths which have been fully reported to me have been 1065, and happened in the various states as follows:

Arkansas,	14	New Hampshire,	3
California,	10	New Jersey,	60
Colorado,	2	New Brunswick,	4
Connecticut,	11	New York,	195
Delaware,	—	North Carolina,	14
District Columbia,	10	Nova Scotia,	2
Georgia,	47	Ohio,	87
Illinois,	63	Ontario,	28
Indiana,	24	Pennsylvania,	116
Iowa,	3	Prince Edward Island,	—
Kansas,	2	Quebec,	1
Kentucky,	7	Rhode Island,	8
Maine,	4	Tennessee,	30
Maryland,	51	Utah,	2
Massachusetts,	115	Vermont,	2
Michigan,	42	Virginia,	46
Minnesota,	10	West Virginia,	—
Missouri,	29	Washington,	—
Montana,	—	Wisconsin,	21
Nebraska,	2		

The relative mortality of the different states as shown by the ratio of the number of deaths to the average number of members in each State is shown by the following table, in which the number of members assessed in Call No. 150, June, 1891, is taken as the average number for the year. This is assumed because the total number assessed at that call, 118,687, is quite near the actual average membership for the year, as quoted above from the Supreme Secretary's report, namely, 118,674. The jurisdictions of which the membership is less than 500 members are not included in this comparison:

State.	Deaths.	Membership.	Ratio.
Arkansas,	14	581	24.0+
Georgia,	47	3,183	14.8—
Tennessee,	30	2,083	14.4+
Virginia,	46	3,207	14.4—
District Columbia,	10	739	13.5+
North Carolina,	14	1,238	11.3+
Maryland,	51	4,367	11.2+
Ohio,	87	8,470	10.3—
Minnesota,	10	1,027	9.7+

State.	Deaths.	Membership.	Ratio
Ontario,	28	2,987	9.5+
Indiana,	24	2,718	8.8+
Massachusetts,	115	13,137	8.8—
New Jersey,	60	7,141	8.4+
New York,	195	23,441	8.3+
Pennsylvania,	116	14,438	8.0+
Missouri,	29	3,640	7.9+
New Brunswick,	4	529	7.6—
Michigan,	42	5,606	7.5—
Wisconsin,	21	2,943	7.1+
Rhode Island,	8	1,124	7.1+
Illinois,	63	9,370	6.7+
Connecticut,	11	2,267	4.9—
Iowa,	3	813	3.7—

It cannot but be observed that Arkansas still holds the most prominent position as regards the number of deaths per thousand, whilst Georgia, Tennessee, Virginia and North Carolina follow at quite a distance from the first mentioned State. Of the five largest jurisdictions, Pennsylvania, New York, New Jersey, Massachusetts and Ohio, the first has the place of honor this year with the smallest relative mortality, and the others follow in the order given ; it may be remembered that last year New Jersey had had the smallest number of deaths proportionally, whilst Pennsylvania had lost the most. These five States, however. keep very near each other from year to year, the difference in rate being only fractional. The smaller States change their relative position frequently, though Connecticut has for four years maintained a very honorable position with a death rate of but 1.9 to 4.9 per thousand. Iowa, which now holds the lowest rate of all.(3.7), has not before appeared in the list as its membership was too small.

CLASSIFICATION.

Our usual classification shows the following results :—

Classes.	No. of Deaths.	Percentage.
Zymotic,	97	9.1
Tubercular,	165	15.4
Brain and Spine,	158	14.8
Heart and Circulating Organs,	113	10.6
Lungs (not tubercular),	160	15.0
Digestive Organs,	96	9.0

Classes.	No. of Deaths.	Percentage.
Kidneys and Urinary Organs,	110	10.3
Casualties,	73	6.8
Suicides,	36	3.4
Cancer,	39	3.6
Unclassified,	22	2.0
	1069	100.0

It will be observed that our classification includes 1069 deaths instead of 1065 as shown in the deaths by states; this addition is due to the fact that there were four deaths which occurred in 1890 but were not reported in time for the report of 1891.

The difference between this table and those of previous years is so small as to excite surprise.

COMPARISON WITH PREVIOUS YEARS.

	1880	1881	1882	1883	1884	1885	1886	1887	1888	1889	1890	1891	Avg'r. age.
Zymotic.....	14	19	11.6	8.8	11.6	10.7	12.2	9.9	10.6	9.3	10.2	9.1	11.5
Tubercular,	13	12	17.8	19.5	20.3	16.9	15.9	15.9	14.7	14.5	14.3	15.4	15.9
Brain.....	16	10	13.7	15.7	15.6	14.4	15.5	17.6	17.6	17.0	16.2	14.8	15.3
Heart.....	9	9	8.7	7.9	9.1	10.7	12.0	11.8	8.2	9.0	11.4	10.6	9.6
Lungs.....	13	12	14.1	9.5	12.4	9.9	11.6	10.7	13.7	10.8	14.6	15.0	12.1
Digest.....	9	13	11.2	9.7	7.7	12.8	9.0	11.5	10.9	11.0	9.3	9.0	10.4
Kidney.....	9	5	5.0	9.7	6.4	7.3	7.0	7.4	8.9	9.6	7.7	10.3	8.1
Casual.....	10	9	8.7	7.7	7.7	5.9	8.7	7.1	6.5	8.5	7.0	6.8	7.9
Suicides....	5	1	3.3	5.3	3.0	8.7	3.1	2.3	4.3	3.5	3.9	3.4	3.4
Cancer.....	2	6	3.7	3.8	3.0	4.5	8.0	2.9	3.9	4.5	3.3	3.6	3.7
Unclassified,	0	1	2.0	2.4	3.1	3.4	2.0	2.9	0.2	2.3	2.1	2.0	1.9

The most marked feature of this comparison is the increase of deaths from acute diseases of the lungs; this is doubtless the effect of the grippe, since a large part of the deaths resulting from the epidemic have been caused by pulmonary troubles. Diseases of the kidneys also seem to have increased without any assignable cause, unless it be again the grippe. In all other classes the year's work varies very little from the average.

ZYMOTIC DISEASES.

The deaths in this class were 97 in number, and typhoid fever was the active agent in 20. 16 died from various forms of malarial poisoning, 6 had acute articular rheumatism, 6 had erysipelas, 6 died from uncomplicated grippe, 1 from malignant diphtheria and 1 from yellow fever.

Seventy-one of these parties resided in the Northern States and 26 in the Southern States.

The cases of typhoid fever had various complications; 11 with hemorrhage of the bowels, 6 with pneumonia and 8 had a preponderance of cerebral symptoms; in 2 perforation of the bowels is reported, 1 had nephritis (acute), 2 previous valvular disease of the heart and 1 phthisis. The latter, No. 6106, was a salesman 23 years old and had been a member but 9 months; he is reported as a "pronounced case of typhoid fever with tubercular deposits in the lungs and tubercular bacilli in the sputa;" he had no family history of phthisis.

No. 6013 was reported quite fully, as follows: He was a machinist, 31 years of age and had been a member about 4 years. The duration of his illness was 14 days and he had had slight aortic regurgitation previously, his symptoms were unusually severe pain in the head and back, high temperature, delirium, rapid and weak pulse, great prostration and semi-coma. An autopsy showed the usual intestinal lesions of the second week, slight meningitis and some thickening of the aortic valve, the heart being otherwise normal. The post mortem examination was made at the hospital in Hartford, Connecticut, where he died.

As might be expected with typhoid fever a large number, 12, died in less than a year after joining the Order; they died too in the prime of life, only 4 being more than 60 years old, 80 of them being less than 50 years of age at death.

PHTHISIS.

The whole number of deaths from consumption to the best of my judgment was 165. There are, however, 2 or 3 cases called chronic bronchitis or hemorrhage of the lungs which may have had a tubercular origin, though the history as reported, seems to indicate that they were of a bronchitic or pneumonic character and they have accordingly been so classed. But I have as in previous years included in the catalogue of phthisical deaths all that by any fairness seem to belong there. This number bears about the usual proportion to the deaths as a whole and the percentage is much as it has been in other years.

By States they occurred as follows:

New York,	31	Michigan,	7
Massachusetts,	23	Maryland,	6
Pennsylvania,	19	Wisconsin,	5
Ohio,	14	Ontario,	4
Illinois,	14	Indiana,	4
Virginia,	10	New Brunswick,	3
New Jersey.	7		

In New Hampshire, Rhode Island, District of Columbia, Georgia, Maine and Kentucky there were in each 2, and in Connecticut, California, Tennessee, Nebraska, Missouri and Minnesota, there were in each 1.

It may be added that the comparative mortality from consumption during the year in the states which have more than a thousand members, was as follows:

State.	Ratio of Deaths per 1000 Mem.
Virginia,	3.12
Rhode Island,	1.78
Massachusetts,	1.75
Wisconsin,	1.69
Ohio,	1.65
Illinois,	1.49
Indiana,	1.45
Maryland,	1.37
Ontario,	1.36
New York,	1.32
Pennsylvania,	1.32
Minnesota,97
Georgia,63
Tennessee,48
Connecticut,44
Missouri,27

No deaths by phthisis appear in the reports from Arkansas, Colorado, Delaware, Iowa, Kansas, North Carolina, Nova Scotia, Quebec, Vermont, West Virginia, or Washington. The large number of deaths attributed to Virginia also is of course exceptional and accidental, as there were none in that state last year.

As we have uniformly found in every year's report the proportion of those who died from consumption that were light in weight in proportion to their height is very large, namely 135 out of 165, or 81 per cent., whilst only 19 per cent. of those who died of phthisis were at or above the normal weight.

By far the greater proportion of those who died of this disease, one hundred and ten, were comparatively old members of the Arcanum, while not less than 54 of these poor invalids had been members more than ten years. Only three died before completing their first year in the Order, two of these being from New York and one from Michigan.

The first of those dying within a year, No. 5669, was a man fifty-four years of age on entrance, of fair weight and good family history. Three months after entrance he had bronchial trouble, pleurisy with effusion, a quart of liquid being removed from his chest, and phthisis followed. His membership lasted ten and a half months. No. 5922 was forty-nine years old at entrance, of fair weight and good family history, but a machinist by trade, so that his disease was partly attributed to the inhalation of steel dust. He was attacked by la grippe about five months after he obtained membership, which was followed by congestion of the lungs, pulmonary hemorrhage and phthisis. The third, No. 6024, was that of one who was thirty-six years of age, good weight and family history, except that his mother at the age of twenty-six died in child-bed. Seven months after initiation he began to have consumptive indications followed by general tuberculosis of the lungs, liver, larynx and bladder, as shown by an autopsy.

In neither of these cases is there reason to think that the risk was other than good when accepted.

Fourteen died in less than two years after joining.

The epidemic influenza, as by my previous report, seems to have swelled the number of the phthisical unfortunates, as in our list appear fourteen whose malady was provoked or aggravated by this agency; all but two of them were men of light weight, thus making it doubtful whether their phthisis was owing to the grippe or whether the grippe may not have produced these serious effects by reason of their light weight and deficient nourishment.

Between twenty and thirty of the 165 had a positive history of the occurrence of consumption in some member of the immediate family, for the most part in a brother or sister; in about as many more there were deaths from unknown causes or in child-birth, where tuberculosis may have been an unknown factor. One is much inclined to think well of an applicant who is reported on favorably if he has attained the age of forty or fifty, even if he has lost a brother or sister by phthisis, particularly when he has passed the age at which the brother or sister died. But our records tell us of a man who entered at forty-seven, with a history of a brother who died at twenty-five of consumption, the applicant himself dying at fifty-seven of the same disease; of one thirty-five at entrance (mother having died at twenty-eight of phthisis), who died also of phthisis at forty-five; of another who joined at the age of thirty-three, his father having died at thirty-one of consumption, and this man died

at forty-four of the same affection ; and of still another (who had lost a brother and sister at the ages of thirty-two and sixteen by consumption), of forty-four years when admitted, and he died at fifty-six of consumption. It is pretty hazardous for us to assume in any possible case which has a family history of consumption that there is absolutely no danger of the applicant's falling a victim to the same sickness.

Death No. 5293 was so different from ordinary cases of consumption as to deserve mention. The deceased was a man of forty-four years on entrance, light in weight but with an unimpeachable family history ; he had had an attack of gravel nine years previous to admission from which he appeared to have recovered, and the urine on examination was said to have a specific gravity of 1.021, with an acid reaction. He seems to have been well for more than five years after becoming a member, but eventually suffered from tubercular epididymitis, prostatitis and disease of the seminal vesicles. Supra-pubic cystotomy was performed but the wound did not granulate and was followed by general suppuration, sloughing and death.

Death No. 5330 is also of interest, when read in connection with the statement made at time of examination, as follows : " Right shoulder depressed from carrying heavy weights and right lung does not expand as freely as left, but respiration is normal and chest expansion above the average." The man was 33 years old and lived more than 5 years a member of the Order, but at last died of phthisis with severe hemorrhages. These cases which are so exceptional at the time of examination as to require a great deal of explanation, for the most part prove bad risks.

Death No. 5515, of phthisis, was said to have been complicated with epithelioma of the larynx, though there was no autopsy. There was no family history of cancer or consumption.

No. 5695 was also diagnosed as an abscess of the lung rather than phthisis and commenced as a putrid bronchitis for several years, followed by copious expectoration of very offensive pus and resulting in wasting and death.

The member in No. 5834 was an editor and was taken with sudden haemoptysis at the railroad station whilst " waiting for the presidential train," and died in a few minutes. He had been a member of our organization for more than five years and had had phthisis for two or three years.

No. 5840 was also that of a member who was found dead by the roadside from pulmonary hemorrhage. He had been ill for a year

with tubercular laryngitis and a member for more than four years. He was thirty-eight years old, with no family history of phthisis, but had lost a brother aged thirty from diabetes.

It is rather extraordinary how many of our consumptive deaths were the effects of sudden and uncontrollable hemorrhages.

Still another death from surgical interference in tuberculosis was No. 6092, in which deceased had previously cystitis, then pain in back and radiating pains over thighs, undermining of health and phthisis followed by tubercular kidney and pyelitis; "nephrectomy was performed for tuberculous pyo-nephrosis" and the patient sank from the shock of the operation.

I have included in my cases of phthisis No. 6141, though the attending physician declares that it was not tubercular. The disease commenced with acute inflammation of the apex of the right lung which was followed by a vomica (or cavity) which discharged through the bronchi and resulted in wasting and death. This explanation is quite rational, still the case seems to me to have been one of phthisis.

BRAIN DISEASE.

From diseases of the brain or spinal cord we lost 158 members in the past year. 119 of the deceased were over forty and thirty-nine less than forty years old. Of the immediate relatives of these persons, twenty-nine are recorded as having died of some form of cerebral affection and a score or more others died of unknown causes after arriving at the age of fifty. The danger of accepting as risks, persons who have a family history of brain disease, appears from our Arcanum experience to be far greater than that of accepting persons with a family history of heart disease.

Eighty-seven of this number are believed to have had apoplexy or paralysis as the result of cerebral effusion; in nine the diagnosis was of cerebral softening, in six of general paresis, in six there was abscess from disease of the internal ear. Six cases are reported of intra-cranial tumor (Nos. 6282, 6102, 6059, 6004, 5975 and 5792), but in only one was an examination made after death to verify the diagnosis. Softening of the brain was alleged to be the cause of death in nine cases, seven were attributed to meningitis, and several died from nervous prostration, asthenia, chorea and exhaustion from various forms of mania or insanity, and two died of grippe.

One of the cases of intra-cranial tumor has the following history: was a druggist, sixty five years old at death and had been a member of the Order thirteen years. About ten years before his death he is

said to have had a severe sore throat and mouth, followed by a chronic skin disease with alopecia; to this succeeded rheumatic pains in shoulder and knee; had two or three exostoses connected with the sternum and for eighteen months suffered from periosteal inflammation of the frontal bone; he later became partially blind in one eye and totally so in the other, and finally became comatose a month before death. One cannot but think it a typical account of a case of syphilis, except the omission of the history of the initial lesion. One wonders if he had appropriate treatment.

No. 5351 is the case of a brother who died at the age of fifty-four years, having been a member for over thirteen years. The duration of his last illness was but three months, but it is said that he previously had Bright's disease and a defective and fatty heart; he was attacked by bronchitis with a cough and copious expectoration and difficult breathing; he appeared to gain in strength and appetite and spirits, but suddenly dropped dead. The case was reported by the attending physician as one of cerebral hemorrhage, though there was no autopsy.

Sudden death in this class of diseases was quite common and in some cases came as a relief to long and protracted illness and suffering, while of the others some dropped by the roadside or in the fields, some were found dead in bed, or were travelling in the cars, or stopping at an hotel, and one died instantly while taking a Turkish bath.

The ages of this class is simply indicative of the increased tendency to brain disease in elderly people, as 119 of them were more than forty years old at death, and only 38 less than that age; there was but one who died before he became thirty.

Of those who died soon after joining our ranks, the first, No. 5350, is attributed to "exhaustion of the nervous system" in a man aged forty-four, and seems to have been a case of insanity of a melancholic type. No. 5460 too, occurred in a comparatively young man, who was a hotel proprietor and is said to have been overworked; it was reported to be a death from apoplexy. The third was a case, No. 5520, which excited great interest in the town and Council where it occurred, and was that of a weaver fifty years old who had run from his home to take a train and became unconscious after leaving the train. As a bottle of spirits was found on his person the coma was thought by the attending physician to be alcoholie. He died without regaining consciousness and a post mortem examination was held, which revealed a ruptured blood vessel of the brain, vindicating his memory by showing that the unconsciousness was not the effects of intoxication.

The fourth, No. 5529, a county surveyor, was also a man but a little over thirty who died three months after joining the Order. He is said to have had softening of the brain as a result of extreme mental and intellectual effort, but the fatal illness was preceded by an attack of la grippe, which undoubtedly was a factor in the case.

Still another death from brain disease occurring five months after the man joined the Order, was No. 5550, in a man forty-six years old : this is a history of progressive paralysis, but la grippe seems to have been the principal agent in inducing the rapid termination. He was but forty-two years old and is reported to have died of apoplexy. The death in No. 5930, occurred in a man less than thirty years of age after a membership of but four months. The symptoms were complete paralysis of the lower extremities and hemorrhage from the bladder. No theory is advanced as to the nature of the disease and there was no post mortem examination. No. 5974 was still more sudden, the member dying in a little over a month from cerebral hemorrhage, after an illness of but twenty-five minutes ; he had had no previous illness, except sick-headaches ; he had a good family and personal history and was apparently in the full enjoyment of health. The next death, No. 6069, was that of a physician, less than forty years old, who died of so-called "congestion of the brain" after a four days' illness. He had a gouty diathesis and probably ought not to have been admitted. Under thirty years old and a machinist was the next one, No. 6102, who lived less than a year after initiation. He is said to have had epileptiform convulsions and an intracranial tumor was thought to have existed ; no autopsy was made. Last of all was a man of fine physique, No. 6215, under forty years of age, with every appearance of robust health, who, whilst taking a Turkish bath, fell and died instantly.

It is remarkable that in the whole of this group of eleven cases dying in less than a year, none had a history of hereditary brain disease and all were comparatively young men, none being more than fifty years old, two being only twenty-nine, and four under forty.

HEART DISEASE.

The deaths from heart disease, so far as can be determined by our returns, have been 113 in number, and no less than thirty-six were sudden ; not all of these latter died instantaneously, though most of them did, and the remainder were sick only an hour or two ; of the others some had been invalids for a year or more, but a few were

prostrated by death while apparently in the full enjoyment of health. In such cases the distinction between brain and heart disease is not always made as critically as we should desire for the purpose of science. Two thirds of these were men above the average weight at the time of their admission, ninety-four were over forty years old at death, only eighteen being less than that age, two only were under thirty. Three died within a year of their joining our ranks, as follows: No. 5608 was a man fifty-three years old, who died instantly of what was said to have been heart disease, though there was no post mortem examination, and there had been no previous symptoms of cardiac trouble; he had, however, become intemperate, and the medical examiner is of opinion that this caused his death. No. 5745 lived but six months after becoming a member and died suddenly of heart disease, as proven by an autopsy, which is said to have shown hypertrophy and dilatation of the heart with mitral disease. He had recently had la grippe and the weather was intensely hot, all of which accounts satisfactorily for his sudden death, but hardly accounts for his admission into the Order. I cannot but think that if he had been properly examined he would have been found ineligible for membership. No. 6067 lived nine months but died of an acute attack of endocarditis; there seems to be no reason to think that he was diseased when he was examined.

Twenty of these men had had rheumatism anterior to their heart disease, and it is possible, of course, that in others the disease may also have had a rheumatic origin; in but ten of the cases was there record of rheumatism prior to joining the Order; of the others some had had rheumatism after joining the Order, previous to this heart disease, and in several cases the final attack seems to have been of a rheumatic character.

Forty-one are simply said to have died of heart disease or heart failure, nineteen of valvular disease, thirteen of angina pectoris, five of aneurism of the aorta, two of pericarditis, one of endocarditis, eight of hypertrophy, three of dilatation, one of fatty degeneration, and one died of an embolus. A melancholy interest attaches to the latter from the fact that the recent death of our lamented Supreme Regent arose from the same cause. In the case here recorded, No. 6243, the man was forty-two years old and had been a member fourteen years. The duration of his illness was one month, he had previously had heart disease, was attacked by an embolus of the femoral artery, followed by gangrene of the leg and death. No autopsy was held.

The matter of family history amongst those who died of heart disease is not very noticeable; in only eight cases is there a positive record of some near relative dying of this cause, and in six cases it is said that a parent or a brother or sister died of dropsy. Experience in the R. A. has not thus far pointed out very plainly any marked liability to heart disease amongst those who have lost relatives from this cause, and it is certainly the fact that our pages show that most of those who died from heart disease did not have an hereditary tendency to it, and that really it is exceedingly rare to find one who has such a history.

DEATHS FROM DISEASES OF RESPIRATORY ORGANS.

As in every year the number of deaths from this class of diseases is among the largest, 160 of our members having this year died from these affections.

Pneumonia takes the first rank with its list of 126 victims, nine of which are said to have had pleuro-pneumonia, seven double pneumonia and five typhoid pneumonia.

Fourteen died of bronchitis, three of these cases being designated chronic bronchitis; the latter three do not seem to be cases of phthisis, as one was aged fifty-nine and had had periodical sprees, one sixty-four and one thirty-three; in the last death was hastened by la grippe.

Two cases of hemorrhage of the lungs have been also included in this series of acute lung diseases as from the description given I cannot think they were phthisical. The first, No. 5601, occurred in a merchant forty-five years old, of good health, who is said to have "coughed and ruptured a blood vessel" which was followed by a hemorrhage from the mouth and nose which proved fatal in five minutes. The second, No. 5875, a book keeper aged thirty-two, was taken with a profuse hemorrhage on July 29, which was followed by a second on August 8, lasting two days and from which he died on the 17th.; he was a man of good habits, a constant and hard worker and there is no history of antecedent sickness. A third case somewhat similar, No. 6359, has been placed by me amongst the phthisical deaths as the history seems to indicate some pre-existing lesion of the lung; he had had pneumonia several years before and his last illness commenced with a chill followed by high temperature, 105, and a mucous fetid expectoration which was followed by hemorrhage which could not be checked for three or four hours.

There was one case of quinsy, one case of influenza, proving fatal by heart complications, nine cases of congestion of the lungs, most of

which seem to have a malarial or influenza origin; there were five cases of pleurisy, one of which resulted in empyema and septicæmia, one of oedema of the lungs resulting in sudden death, and one of hyperæmia of the lungs also resulting in the sudden death of an intemperate man.

Of this series of cases fourteen died within a year after becoming members and one died at the end of a month with only one week's sickness. The ages of these men were rather greater than might have been anticipated, seventy being more than fifty and 10⁹ being over forty, and only ten less than thirty.

Eighty-two per cent. of these resided in the Northern States, about 20 per cent. in New York State and 10 per cent. in Pennsylvania.

DISEASES OF DIGESTIVE ORGANS.

There is not very much of interest, in a medical way, that attaches to the history of the ninety-six members who died of disease of the digestive organs. Most of them had been for many years brothers in the Arcanum; and of the few who died in less than a year there are none who seem to have been sick men on admission. One, however, No. 6147, died of alcoholic gastric catarrh, and if the diagnosis was correct, of which there is little doubt, either the Investigating Committee or the Medical Examiner, or both, failed in their duty.

As in other years disease of the liver and its appendages holds a prominent place in the causation of these deaths, there being thirty-one arising from this source. Eleven of these were from cirrhosis, and in but two of the latter is the over use of alcohol alleged. Thirty-three deaths arose from affection of the bowels, and of these five were said to be cases of peri-typhlitis, the disease explained in our last report. Laparotomy (an incision into the bowels) was performed in two of these; in one the diagnosis was confirmed by an examination after death, and in two there was neither a surgical operation nor an autopsy. In sixteen instances the stomach was the part affected, two being cases of gastric ulcer, and four deaths being caused by hemorrhage. Ten deaths originated from peritonitis, and three from cholera morbus. Death No. 5672, reported as from "inanition," was certainly unusual at least. It occurred in a manufacturer aged forty, and the duration of illness is said to have been six months. He was supposed to have cancer of the stomach; was greatly emaciated with weakness, vomiting, etc.; really had a tumor as large as a man's head in the lower part of the abdomen, and was treated for it. Post-mortem examination "showed that the tumor

had been absorbed," that there were many adhesions resulting from peritonitis many years before, and that the other organs were healthy; hyper-emesis had been a prominent symptom. Evidently the doctor "cured him" until he died.

Five deaths were directly owing to the excessive drinking of spirits, and the great number of deaths from cirrhosis and ascites leads to a suspicion that many others may have so originated.

Cholaemia, or inflammation caused by the pressure of gall stones, was five times reported. In two of the cases a surgical operation was performed, and in one an autopsy, revealing the presence of ten gall-stones, made the diagnosis certain. In the other case no surgical exploration was made. No. 6119 is reported to have had periodic attacks of biliary colic for nine months, followed by passing of stones from the bowels with marked indigestion and jaundice; the man dying from exhaustion occasioned by the continuance and severity of the attacks.

DISEASES OF THE URINARY AND GENITAL ORGANS.

One hundred and ten of our men died from diseases of this class, and the great majority, eighty-one, were from some form of Bright's disease; fourteen were the victims of diabetes mellitus, four of acute congestion of the kidneys and suppression of urine, four of prostatic diseases, four of cystitis and two of stone in the bladder.

A very large proportion of these persons were men of middle age, ninety-three were past forty, and two only were between twenty and thirty years old. In connection with the fact of their advanced age may be stated also the fact that no less than forty-eight of them had been members of the Order more than ten years, so that their admissions ante-date the period when examinations of the urine were required by our laws. For that reason we cannot say what was the condition of the urine of these men when they applied. Of those examined since we have a record of the specific gravity of the urine of each individual. As a rule, as might be anticipated, there is nothing in these figures to portend death from kidney disease; those who have died of diabetes did not show a very high specific gravity when it was tested for admission, and those who have died of Bright's disease not a low one. The reason for this, however, may very probably be found in the fact that the whole character of the urine had had time to change in the years which passed between their acceptance and their death. Only four died within a year after joining, but three of these died of a form of disease that certainly appears to have been chronic; in forty cases where the examination

was made, the specific gravity was 1.020 or less; in two of the diabetic cases it was reported at 1.028, and in one case of Bright's at 1.030. One of those who died of stone had on entrance urine of a speefic gravity of 1.015, and its reaction was alkaline; nearly eleven years, however, had passed between his admission and his death.

As regards heredity, eight had a positive history of the existence of kidney disease in the family, and four others ascribed the death of a parent to dropsy. One had lost a father and brother of Bright's disease, and he himself died by the same agency at the age of sixty-eight, after a membership of more than ten years.

It would not be expected that the matter of occupation would hold any prominent place in this line of cases, and for the most part the list of those dying of Bright's disease is made up of merchants, clerks, mechanics, and the like, but there were four of the deceased who were liquor dealers, and four were engaged in the use of lead; of the latter, one had had lead disease before joining the Order eight years ago. There is no doubt in my mind that these two occupations at least do have a tendency to produce albuminuria.

CASUALTIES.

Seventy-three deaths have been classified as accidental, though there are always a few concerning which one must be in doubt whether they may not have been suicidal; as in previous years, however, every endeavor has been made to separate the one class from the other, and not to put in the list of accidents any of those in which the victim caused his own death purposely.

Railroad accidents as usual were the most numerous, twenty-one having died from this cause, two were killed by the street-cars, three run over by other vehicles, eleven were poisoned, or took an over-dose of medicine carelessly; death was the effect of a fall in six, five were drowned, five shot, whilst sixteen deaths were the result of various accidents, such as being caught in machinery, killed by explosions, run away with by horses, crushed by falling objects, burned, scalded and suffocated.

Twenty of these deaths seem to have been caused by the occupation of the victims, thus four of them were R. R. engineers, two of whom seem to have fallen from the train, one was scalded by a boiler explosion, and one run over by the train; four were brakemen or switchmen employed in coupling cars; two were engineers on steam-boats, of whom one was caught in the machinery and one drowned

by the sinking of the boat; one was a steamboat captain and crushed by machinery; two were run over in railroad yards, one being a watchman and one a yard clerk; one, a laborer, was found dead in a car loaded with pig-iron, which had probably fallen upon him; one was a conductor, No. 6003, killed in a railroad accident, though it is not stated whether he was the conductor of a freight or a passenger train. Another, No. 6077, was a train despatcher, killed by the breaking of a chain whilst superintending a gang of men employed in clearing away the wreck of a train.

One, a superintendent, was killed by a blast while directing the removal of a piece of slate rock. One, a farmer, was caught in a threshing machine and his leg torn off. One, who was a mason, was killed by falling from his staging, and a carpenter met his death in the same way.

SUICIDE.

Thirty-six deaths during the year have I think been voluntarily caused by the deceased. There are always however some, where there cannot but be a doubt as to whether the deed may not have been accidental.

For example, death No. 5339, was that of a machinist who had suffered much from neuralgia and had been in the habit of taking morphine for relief. He was found narcotized and the coroner's report was that he died of "unintentional suicide." A similar case was that of No. 5873 where the deceased had contracted the chloroform habit and it is of course impossible to say whether his over-dose was intentional or accidental. Seven persons in all died from the use of narcotics, in all of whose cases there might be a doubt on the matter of suicide. The same question might be raised concerning the seven who were found drowned, especially as one was found dead in his bath-tub. Of the fourteen who were shot little doubt could arise, nor with the four who died by the knife, and the same is true of the three who hanged themselves. Strychnine also caused the death of one and could hardly be supposed to have been taken except on purpose. Finally one was found dead at a hotel with the gas turned on, the light having been extinguished, which is also one of the cases in which there cannot but be a doubt; in this instance however, though there had been no previous history of insanity, it did appear that he had been very poor and in a chronic state of intoxication.

Fourteen of these unhappy men had been insane or despondent or greatly depressed in spirits and several had been drinking to excess.

They were men for the most part not young, twenty-five of them being over forty years of age and only three less than thirty.

Two of them had a positive family history of suicide, each having lost a father in this way; and in two others the father had died from brain disease.

Six of these men were in no business and this fact should be borne in mind in the selection of risks. One man was a liquor dealer, one the superintendent of an Orphan's Home, one an oil-well pumper, there was one machinist, one saddler, one cutter, one policeman, one blacksmith, one lawyer, one secretary, one stock broker, but most of them were merchants, book-keepers and salesmen, whose employment seem to have had but little effect in deciding the result.

There is no ease in which death followed entrance into the Order so soon as to lead to the belief that the member joined with the intent to commit suicide.

CANCER.

Thirty-nine deaths from cancer are contained in this report, and this includes three cases of sarcoma, which it seems to me for all our purposes may properly come under this heading.

There is little of note to mention. In only two cases is there any evidence that the disease was hereditary. In one the attending physician remarks that there was a family history of cancer, but gives no details; in the other the applicant stated in his application that his mother died of cancer at fifty-two. Twenty-four of them were more than fifty years old, and only one was less than thirty.

Three died in less than a year, and of these one, No. 5969, is interesting in many ways. He was twenty-nine years old; a clergyman; six feet high, and weighed 175 pounds, and seemed, and was reported by the Medical Examiner, to be a first-class risk. His family history was excellent, except that his father died at sixty-three of *consumption*, and, as for personal history, he had had no illness, except nasal catarrh seven years before whilst in college. Three days after initiation he applied to his family physician for relief on account of acute intestinal pain, and was relieved by a hypodermic injection of morphine. Shortly after this he is reported as consulting surgeons and physicians on account of hemorrhage and pain, and on July 17 (less than four months after he became a member of the Royal Arcanum) he was admitted to the Johns Hopkins Hospital in Baltimore, where on the next day a mass of cancer was removed from the rectum, and he died on the 23rd. Not the least pertinent of the facts in this case is that he was ineligible when ad-

mitted under our law, that an applicant who has lost a parent by consumption cannot be admitted until he is thirty years old. Under a careful supervision of the application he would have been rejected, and I have no doubt that he would have thought his rejection quite proper with the knowledge that he must have had that he was suffering from a physical weakness of some description.

Death No. 5850 came on eleven months after the man became a member of the Order. Beginning with a tumor in the left orbit, pushing out the eyeball, the disease next showed itself in a large tumor connected with the omentum, below the liver, and a smaller nodule at the umbilicus. The growth of the orbital tumor was the most serious, as by pressing on the brain it caused mental dullness, and eventually coma and death. No post-mortem was held.

The third of these three cases which terminated fatally so rapidly is that of a barber, aged forty-six, which is described as a general cancerous cachexia with a tumor at the pit of the stomach, vomiting of matter like coffee grounds and burning and lancinating pain. There was a history of a severe fall on his stomach some months before.

In eight of these deaths by cancer an examination after death verified the diagnosis.

In a new English book, "The Medical Annual for 1892," is an elaborate article on Cancer by W. H. Elam, F. R. C. S., who states that all observers are agreed that there is an increased prevalence of cancer. He says that the statistics from the Registrar-General's fifty-second annual report shows that of every twenty-one men and eight women who live to be thirty-five years old one will respectively die of cancer, that the increase has been greater amongst males than females, and has been regularly greater the more advanced the age. It is clear too that the increase amongst men has been mainly in the mouth, tongue and pharynx, and in women in the digestive and urinary systems. He quotes the following figures which are very surprising: that from 1851 to 1860 the mortality from cancer in males in England was 195 per 1,000,000, from 1871 to 1880 it was 315 per 1,000,000, and in the year 1889, it was 643 per 1,000,000. He is inclined to think that the disease will eventually be found to be due to micro-organisms, although it has not been accepted as demonstrated what the special form of microbe, bacteria, or other organism may be. He is of opinion that cancer is in its early stages a local disease, but that when persons arrive at "the cancer age" the disease then finds all that is necessary for its general growth.

UNCLASSIFIED.

Twenty-two cases are entered as unclassified, not by any means because they are unclassifiable, but merely because they do not readily come under the headings adopted in our tables.

Included amongst them is one case of carbuncle in a man fifty-nine years old with its usual history of tension, pain, suppuration and exhaustion; its duration was but three weeks. There were three cases of abscess, one a large one on the neck, lasting many months and wearing the patient out, and two in the throat producing suffocation. One case is attributed to "Heart Failure" but with only a history of pain in the head, back and limbs, and prostration. Four cases were diagnosed as "anaemia," two being "pernicious," both of which had a previous history of Bright's disease, and two were simple.

One member died of rabies in the Massachusetts General Hospital, very soon, only seventeen days, after joining the Order; he had been bitten by his dog three months previously, was taken with a terrible pain in the neck, succeeded by convulsions. In one the death was reported as from an unknown cause, but it was said that an investigation had proved it to be from "natural causes." Two were cases of lead poisoning, one in a carriage painter, and one in a house painter. "Senile Gangrene" of the toe occurred in one instance, with a history of poor health for two previous years; the man was sixty-nine years of age. Another died from purpura hemorrhagica, with profuse bleeding from the kidneys, stomach and mouth.

There were two cases of lymphadenoma or lympho-sarcoma, Hodgkin's disease, with the usual account of enlarged spleen and other glands. There is an instance of osteo-myelitis or inflammation and suppuration of the marrow of both thigh bones, proving fatal in nine weeks in a man not quite sixty.

Another aged fifty died of caries of the vertebrae, with pain in back, wasting, formation of lumbar and psoas abscesses, but no history of any injury. One death was said to be due to exhaustion, which was apparently simply the breaking down of a man aged sixty-five, bladder symptoms being prominent. Finally the list ends with one of "blood poisoning" in which the cause of the septic trouble was unknown, but attributed to a probable empyema.

LA GRIPPE.

In ninety-four of the deaths of the year was la grippe mentioned as a factor, a very similar percentage to that of the previous year.

Sixteen of these deaths occurred in New York, thirteen in Ohio, twelve in Pennsylvania, eight in Illinois, six each in Massachusetts and Georgia, and in no other State were there more than three.

The division into classes which I made of them last year tallies well with their characteristics of this year. The first class (comprising thirty-nine) is made up of those who seem to have died from the direct effects of an attack of the grippe with its usual variety of symptoms and phenomena. Quite frequently acute disease of the respiratory organs was the form in which it manifested itself, frequently also cerebral congestion appeared and a train of cephalic symptoms produced death or insanity, and in other cases diseases of the digestive organs showed the fatal facility with which other organs than those of the respiratory or cerebral tracts became involved.

In the second class I find thirty reported, it being made up of those who being already invalids were carried off by death immediately resulting from la grippe.

Twenty-five had previously had grippe, some a year ago, and some two or three years ago, and all tell one story that they had not been well since. Various forms of protracted heart disease, brain disease, phthisis or other forms of asthenia, exhaustion, and suicide closed the pages of the book of life, which had to them become so gloomy and depressing. Chronic wasting and saddening illness seem for many of them to have been the direct result of an attack of the epidemic influenza from which they could never fully recover.

The majority, sixty-seven, were over fifty years old at death and only five were under thirty.

ALCOHOLISM.

One can hardly examine closely the reports of our thousand deaths during the past year without noting how large a place is occupied therein by the ravages of King Alcohol, and without doubting if all is done that can be done to lessen the number of intemperate men in our ranks. We can perhaps do little if anything to eliminate those who as bona fide temperate men and good citizens joined us and afterwards became besotted by the demon of strong drink, and our endeavors must be at least principally directed to keeping out such applicants as have already shown their inability to resist such temptations in the past. Human foresight can do but little in deciding who are likely to fall victims to this pernicious practice, but the past record of a man should be fully investigated and his habits fully looked into. If he has in his early life been addicted to drunken-

ness, his promise of reform must be carefully weighed before being taken as a ground for admission. No reform of a few months, or a year, or two or three years, can be considered sufficient proof that he will not again return to his old sins, and promises in such cases are valueless because the man is wholly and totally unable to keep them no matter how virtuous his intentions.

Reformation that has proved itself by at least a five years' test should alone be considered sufficient, and even then should not be accepted blindly.

During the past few years we have made an earnest attempt to lessen this class of men amongst us by attempting to keep out those whose occupations were such as to lead them into drinking habits and to make their associations unfavorable. Men who constantly handle beer and spirits and live amidst the constant use of these agents are so likely to become infatuated with the habit of drinking that it is almost an impossibility for them to use it temperately or to abstain wholly from its use. The attempt made last year to introduce into our laws something positive on this subject has I think been a direct benefit at least in pointing out to the medical examiners the classes of men about whom they should critically inquire. The section however needs amendment or explanation, for as it stands it seems to me not to treat all these parties alike. It reads as follows:

"Applications shall not be received from the following class of persons, to wit: Bar keepers; hotel proprietors or restaurant keepers who attend their own bars; saloon keepers where intoxicating liquors are sold; keepers of billiard parlors where liquor is sold; or any individual who may be personally engaged in the manufacture or retailing of alcoholic liquor to be drunk on the premises."

A careful study of these words I think shows that by its terms it excludes, first, all bar-tenders of every kind; second, all hotel proprietors or restaurant keepers, provided they attend their own bars; thirdly, saloon keepers of every description, if intoxicating liquors are sold in their saloons, even if they themselves do not sell them; but this exclusion does not extend to their clerks or waiters, seemingly, unless they are bar-keepers; fourthly, all keepers of billiard parlors where liquor is sold, no matter if they do not themselves sell it (this, too, does not rule out their clerks or waiters); and fifthly, any individual who may be personally engaged in the manufacture or retailing of alcoholic liquor to be drunk on the premises. This final clause, "to be drunk on the premises," seems to me obviously to apply only to the word "retailing," for the spirits could hardly be

manufactured to be drunk on the premises; and, if the supposition is correct that it does only apply to those engaged in retailing, then the previous sentence excludes *all* personally engaged in the manufacture of alcoholic liquors, and I am confident this was never intended.

I think the whole section should be revised, and am of the opinion that the following may be a better form: "Applications shall not be received from bar-keepers or other persons who at any time sell or serve alcoholie liquors, to be drunk on the premises." Perhaps the phrase, "or serve," may not be desirable, as it will make the exclusion extend to waiters in hotels and restaurants, and this may not be necessary; but the question will inevitably arise regarding these men, and some form of expression should be used which will fix their status, and not admit of a doubt. With this expression of opinion the matter is left to the action of the Supreme Council.

KOCH'S LYMPH.

In writing as I did more than a year ago about Koch's Lymph, or the so-called "tubereulin," no one could have dreamed how utterly and entirely out of use it would have become at this time. It has wholly gone out of fashion, and those who have used it most are most assured that it has done more hurt than good, and there is at the present day none so poor as to do it reverence. The change of opinion regarding it is complete, and yet there is no scientific medical man that has a word of reproach for Dr. Koch, the student and professor. It will always be remembered that the discovery was almost wrenched from him by the medical world before he had fully and satisfactorily investigated it himself, so eager and enthusiastic was the profession to avail themselves of the new light. There is, therefore, a widely prevailing feeling among medical men that we have not yet heard the last of Koch's discovery, and that at some time or in some way, by his assistance, we may yet receive that immunity from the dangers of phthisis which we were then so sanguine had been attained.

RAILROAD EMPLOYEES.

In addition to the almost daily advices received by me urging the acceptance of various railroad men of different classes and duties, I have an occasional letter warning me that the Arcanum is already too careless in accepting such men and that sooner or later some great disaster will convince us of it. There is much to be considered on this side

of the question and one ought not too hastily to regard such prophets as over timid. The following letters are ably written and give a vivid picture of the danger of railroad men as seen by an insurance agent:

"I notice in the death lists on assessment notices that the Royal Arcanum is paying death losses on locomotive engineers who are killed in railroad accidents, and during the last year I have personally known of several locomotive engineers here who have made application to join the Order, in preference to their own insurance order, which costs them three times as much for the same amount of insurance. It seems to me that this is a dangerous proceeding for the Royal Arcanum, that an engineer at my age should pay the same amount on his assessment as I do, when he runs four times more danger of being killed than I do. No accident company doing business will insure locomotive engineers or firemen for amounts greater than \$2,000, and at a cost that you and I could get a \$10,000 policy for. There can be no equity, without some discrimination, or extra rates being made for applicants who occupy hazardous or extra hazardous occupations; and to state on application that an applicant is an engineer or railroad man does not mean anything, whether he is a locomotive engineer or stationary engineer (a vast difference in the risk) or whether the railroad man is a switchman or freight brakeman (if the latter, no accident company insures them for over \$700 or \$350 respectfully). For the past few years one prime factor in the increase of assessments of the Knights of Honor is because they are taking in so many freight brakemen and switchmen, thereby increasing their death losses. When I took out a certificate in the Royal Arcanum, I believed it was taking and intending to take what similar orders had not done, a preferred selection of insurance risks, but if I am now convinced that they are not so doing I shall let my insurance lapse."

"I am well aware that the principles of the Royal Arcanum are not those of any regular Insurance Company. One is benevolence, the other business, but the position I take is that benevolence should be dispensed with the hand of equity, for such is true benevolence. My experience as an Accident Insurance Agent for the last seven years, with railroad employees exclusively, and during that time representing this Company (the leading one), has convinced me without a doubt; and the experience of other accident companies doing competition with us will support my plain statement of fact that no life insurance company, insurance order, benevolent or other-

wise, can with safe management insure locomotive engineers and firemen on the same graded rate of assessment as business or professional men are accepted. All regular life insurance companies charge \$10 extra to their rate per \$1000 insurance, on engineers, firemen, and freight conductors. Switchmen or freight brakemen are not accepted but prohibited, and I have yet to see a life insurance agent make it a general thing to solicit even engineers and firemen. If as you state their temperate lives offset their additional risk through accident, it seems life insurance companies do not consider it so. I am a constant reader of the Brotherhood of Locomotive Engineer's Journal and Brotherhood of Locomotive Firemen's Journal, and you will notice in both of them that several of their members, engineers and firemen, are expelled from their respective orders for dissipation. My own observation every month is that their drinking habits are as great as any other class of Americans. However, I believe in the East they are more or I might say strictly temperate, but that cannot be truthfully said of them in the Northwest, West or Southwest of this country. I am sorry I cannot furnish you with leaflets of rates. Those I have are in bound form and I have only one copy. Rates of all regular accident companies doing business in this country are nearly alike, and I will now copy our rates on engineers, firemen and conductors. Engineers and Firemen, \$20 per \$1000 insurance and \$5 weekly indemnity; or \$12 per \$1000 insurance with no indemnity per week; limit on Firemen \$1500 and \$2000 on Engineers. Freight Conductors, rate at \$10 per \$1000 insurance and \$5 weekly indemnity, limit \$2000. Passenger Trainmen rates are \$7.50 to \$10 per \$1000, limits \$2000 to \$5000. Of Switchmen, Yardmen and Freight Brakemen the rate is 10 per cent. and limits \$350 only, and yet you can find any number of the latter insured in the order of Knights of Honor and paying the same number of assessments per year on their insurance of \$2000 as business and professional men pay, and the order claims to be a benevolent institution. As you no doubt make your graded assessment rate at the age of each applicant from the American Mortality tables, I leave it to you whether or not applicants occupying hazardous and extra-hazardous positions should not pay more than those who do not. Provided of course if it is the intention of the Royal Arcanum to keep its assessments down to the American Mortality table, which I suppose it is.

The insurance department of the Brotherhood of Locomotive Engineers costs the engineer from \$65 to \$80 per year on \$3000

insurance, and they are continually growling because it costs them so much, but any insurance man will tell them they are getting good insurance at a reasonable price. However, they would be glad to change their insurance to the Royal Arcanum at the present yearly cost, and many of them are trying now to do so. It may be well for me to state now that I have not any pecuniary interest that would affect me if you should accept all the engineers in the country, and that I have no other but true motives for the best well-doing of the Royal Arcanum. Those of the engineers who carry their own order insurance generally carry accident insurance for the sake of the weekly indemnity from \$10 to \$20 per week. The name of the classification in all accident companies on engineers and firemen is 'Extra Hazardous,' and on freight conductors is 'Hazardous.' I should have mentioned this above under the rates, etc. My immediate field for the past four years is the Louisville and Nashville R. R. system, comprising about four thousand miles, and of the number of engineers on this road for the past three years, as far back as I now remember, I would say in 1889, there were twelve killed or died from their injuries, and two died from natural causes, in 1890, nine were killed and two died otherwise; so far this year six have been killed and one by natural death. There are about 1200 engineers employed on this system of roads." This concludes his two able and interesting letters.

With the view of affording material for forming a reasonable opinion on this I have prepared, from the death records, a list of all the deaths by R. R. accidents that have proved fatal to our members during the existence of the Arcanum and find them to be 118 in number. Of these men 57, or less than half, were actually railroad employees, and the others were persons in all walks of life, lawyers, teachers, clerks, etc. Five of these accidents were caused by street cars and therefore are not properly railroad accidents in the sense intended by this inquiry; it might be added also that these five men were none of them railroad men by occupation. The fifty-seven railroad men were made up of the following classes:—

Engineers,	20	Yard Masters,	2
Firemen,	5	Yard Clerk,	1
Conductors,	9	Train Despatcher, . .	1
Brakemen,	9	Car Repairer,	1
Baggage-men,	2	Road Foreman,	1
Switchmen,	2	Watchman,	1

and the other three were simply designated as employed in R.R. transportation, R.R. manager and railroading.

Two of the engineers were not killed in the discharge of their duties, as one was run over whilst walking across the track and the other in some similar way not detailed.

Four engineers were killed in collisions, with three the engine went off the track, five by explosions, two fell from the engine, one struck on his head producing concussion of the brain and one fell under the engine and was run over.

Two brakemen were killed whilst coupling cars, as was also one switchman; the other switchman while leaning forward from a car on a moving train was hit by another train.

One yard-master was run over by the cars, one had his hand crushed and died of pyemia, and the yard clerk jumped, caught his foot in the switch and was run over by the approaching train.

One conductor fell in walking through the train in the night, one was crushed between two cars, two were killed in collisions, one killed in accident, one was struck by a bridge while passing along over his train, one fell from an elevated road, one in a railroad accident and one had the engine pass over his body.

The deliberate and careful consideration of the fifty-seven accidents, being all that have proved fatal in our membership, which I am sure includes some thousands of men so exposed, does not, I confess, impress me with a feeling that we must be more rigid in our exclusion, but rather makes me feel that whilst we cannot accept any men evidently and constantly in dangerous situations, such as freight brakemen, yet that we have not committed an error in accepting, as we have done, those of the railroad men whose lives do not seem to be in constant danger, and whose health and strength are constantly increased by this exhilarating out-door life.

One thing should be said distinctly, which is, that more engineers have been killed than railroad employees of any other grade; this, however, I attribute to the fact that more engineers have joined the Order than any other men employed on the roads; they have more pay than the lower grades of employees and can hence better afford to make provision for their families. I am of the opinion, from my recollection and not from any actual count, that their number in the Order vastly exceeds that of any other class of railroad men. But this whole matter is still open for farther observation, and it may be found necessary as time goes on to exclude certain other classes of railroad men, especially engineers. There is, however, much being done constantly to lessen the dangers of all classes of these men and it is hardly to be anticipated that time will make them appear less favorable as risks.

GLASS BLOWING.

In the report which I presented to the Supreme Council in 1890 I alluded to the supposed dangers incurred by men who were occupied in glass blowing, and gave the opinion of two of our Medical Examiners on the matter, one of whom thought the occupation very hazardous, and one who took the other view of the case. At that time I reported that there had been in the whole history of the Arcanum but five of our members in this occupation who had died since they entered the Order. Of these five only two had died of phthisis; one after a membership of nearly four years, and the other in eight years.

Since that time there has been but one glass worker in our list of deaths, and he died from dilatation of the heart, which may or may not have been attributable to his occupation.

The following letter from one of our Subordinate Examiners is, however, exceedingly interesting as giving the opinion of one who has had many years' experience in the care of men employed as glass blowers.

"In answer to your question concerning the liability of glass blowers to consumption, I will not attempt to write anything theoretical. I will simply say that in Pittsburg and its outlying towns we have many glass factories and a great many glass blowers. In a practice of over twenty-one years in this locality, where a great many of the men employed as glass blowers have fallen under my care and observation, I have not been called upon to treat any larger percentage of them for consumption than I have of men engaged in occupations supposed to be quite healthy and rated as such by insurance companies. In fact, I believe the percentage has been less.

If you take into consideration the fact that there are no other factories so free from dust, smoke and irritating material in the atmosphere as are glass factories, you can appreciate why this is so. They inhale no irritating material of any kind, as there are flues with wonderfully strong draughts to carry off all smoke. The factories are well ventilated, and the only depressing influence to which they are subjected is great heat during the summer season (I speak from observation and investigation), and even this is obviated to a great extent by the fact that all factories in this locality shut down from two to three months during the heated terms.

From this favorable opinion I would certainly exclude grinders, engravers and men engaged in mixing the raw material. You will

readily recognize the irritating material that any man engaged in either of these occupations would be compelled to inhale. (Departments are all separate).

The only unfavorable influences the blower has to contend with are the depressing effects of heat, and that reduced to a minimum, as stated above, and the effects of blowing, which I have never found to produce emphysema or undue liability or susceptibility to emphysema, pneumonitis or phthisis."

This testimony, as will be seen, is of exceeding importance, but cannot be accepted except under certain limitations of place and season. It is hardly to be expected that the hygienic conditions in all parts of the country will be so favorable, or that in every city the factories will be so well ventilated, or will be closed during the hot months. But where identical conditions do prevail applicants of this class, whose applications are favorable in other respects, may safely be admitted.

VACCINATION.

At the last session of the Supreme Council the form of blank was amended in one respect, by adding after the question "Have you been successfully vaccinated?" the additional question, "If not, do you agree to be vaccinated before initiation?" Just what the full intention of this amendment was did not seem clear to me, but it seemed to show that the supervising examiners might approve not only the applications of those who had been vaccinated, but also the papers of those who agreed to be vaccinated before initiation. It was found, however, that this was not fully understood by all the supervising examiners, and after some correspondence with the Supreme Secretary and Acting Supreme Regent, it was thought advisable to publish a note to the medical examiners on the subject, for the purpose of making it certain that action on this question should be uniform in the various jurisdictions. To this end the following circular was issued :

"To insure uniformity with regard to the vaccination of applicants, Supervising Examiners are hereby directed not to approve the application of any one who has not been successfully vaccinated, until two or more attempts have been made to affect this result by or under the observation of one of our own examiners. Those who have not been successfully vaccinated and who decline to submit to the operation, must be rejected. Applicants, however, who have had small-pox or varioloid will be exempted from the operation of these rules."

This I think for the most part met the approval of our medical examiners, and has been readily complied with. But there always have been some of our examiners in certain sections of the country where vaccination is not compulsory by law, and where the practice has not been very general, who claim that small-pox is so infrequent a disease in their localities that vaccination is not necessary. It has always seemed to me, nevertheless, that there was great danger in these localities where people had not learned by experience to dread small-pox, that in some not distant future an epidemic might arise and prove very fatal, a danger which we ought not to ignore.

On the other hand, some of our examiners, who are physicians very familiar with the virtues, the possibilities and the limitations of vaccination, insist that men are not protected against small-pox by a single vaccination, but that we should require that applicants should not be admitted, unless they have been *recently* vaccinated. To illustrate this opinion which has much to justify it, I add the following letter, written by a medical examiner of large experience.

"Regarding the order of the Acting Supreme Regent on 'Successful Vaccination' I beg to inquire is the word 'Successful Vaccination' to be left to the judgment of the local examiner. I had considerable experience in the Small Pox-Hospital here in 1871 and 1872, when there was a severe epidemic, and I learned by a careful examination of each person afflicted with the small-pox that the more recent the vaccination the lighter the attack, and in a veterinary student who was sent down as having small-pox by one of the Professors of one of our Medical Colleges, and was placed in the ward with eight or nine others, some of whom were about as bad as they could be in the night, and next morning in making my rounds I saw at once he had a hybrid form of measles and scarlet fever and no small-pox at all, and being too ill to remove and having no other ward I left him there, and to my joy and his good fortune I discovered on examining his arm that he had been vaccinated just five weeks before. He lay there, got over his measles and scarlet fever in about ten days, and had not a sign of small-pox. My own opinion is we ought not to accept any who cannot furnish a certificate of vaccination within the past seven years. The order will have to be an imperative one as to time, otherwise there will be no end of trouble for the local examiners. I believe in being vaccinated every three or four years, as the only absolutely safe means of preventing an attack. I had the small-pox in the hospital, although vaccinated three years previously. I of course had a

mild type, but heavy enough to thoroughly satisfy me. I also had two or three patients who had the small-pox before, one twice and nearly died the third time, but these of course are exceptions. Kindly have a new order issued with a kindly intimation, but as well an inflexible edict, as I believe not only those who are coming in but those who are in and not been done during the past five or seven years should be ordered to be done or lose their insurance. I don't believe in paying for cranks who will recklessly risk their lives in case of coming in contact with small-pox germs any more than I would be willing to pay for a man who would jump over the side of a vessel and try and swim ashore when near harbor."

Now the doctrine inculcated in the above letter, namely, that frequently repeated vaccinations are the only sure safeguards for all classes I think is right, and has been proved by actual experience. Still, there is one fact of exceeding importance to be considered in connection with the subject, namely, that in thirteen years' experience and with over six thousand deaths we have lost but one man by this disease: it may be presumed that in the event of an extensive epidemic of small-pox we may meet with great losses, and the precautions we have taken may be found insufficient, but it is certainly unwise to place additional limitations upon the growth of the Order, unless they are imperatively and immediately required. An attempt to require re-vaccination of our members would lead, of course, to instant resistance, and would in my opinion be wholly unreasonable.

THE RHEUMATIC DIATHESIS.

That condition of the system which prevails in men who have had rheumatism one or more times, and which renders them liable to other attacks when exposed to the usual causes of the disease, should be considered by examiners for life insurance as pointing significantly towards an early death, superinduced by disease of the heart.

It is very customary among some of our examiners to recommend for membership applicants who have had one, two or three attacks of rheumatism, if at the time of the application a careful examination fails to show that the heart has received any injury by said attack. However soon these attacks may in certain cases be followed by lesions of the heart, and however rapidly these heart lesions may sometimes show themselves, yet this is not always the case, and the affection of the heart may gradually make itself evident even if it be not recognizable a short time after the rheumatism.

But it must still further be borne in mind that the question is not simply whether the heart has already been injured by the previous attacks of rheumatism, but the probability of future similar attacks, and the danger that the heart may become involved even if it has not already suffered, must be seriously considered.

Even muscular rheumatism, which is for the most part alluded to as a trifling affair, is not free from danger to the heart, and Charcot in his work on "Diseases of Old Age," expressly declares this form of disease to be frequently followed by cardiac disaster.

Whilst it would certainly be going too far to require the rejection of every candidate who has ever had acute rheumatism, such a history should always lead to careful examination and inquiry, not alone to discover whether the heart has already received any injury, though this is of course of primary and especial importance, but to ascertain too if there may not be a tendency to rheumatic attacks in the applicant, or something about his occupation that predisposes him to them. The former may not be easily decided, but should at least be carefully pondered.

But when an applicant has had two or more attacks of inflammatory rheumatism I think the diathesis or predisposition may be considered fairly established, and that it is at least reasonable to suppose that he will probably, if exposed to wet and cold, have still other such attacks, and that with every one of these attacks the likelihood that heart disease will follow increases.

Only in very exceptional cases, as for instance where the attacks have arisen from repeated unusual exposures, or where the attacks have been trivial, should an applicant who has twice or thrice suffered from acute rheumatism be admitted to our ranks. It seems to me that to allow even these exceptions may be hazardous and I call the attention of medical examiners to the matter.

GOUT.

Deaths Nos. 5817 and 6069 afford me a text for some remarks on applicants who have either a family or personal history of gout. This disease is so rare in this country as compared with England, that I think sufficient attention is not usually given to the unfavorable prospects of those who have had it, or whose parents have had it. It is pre-eminently an hereditary disease and is exceedingly apt to occur in those whose ancestors, near or remote, have had it. It is also very likely to recur in persons who have once had it and is very sure eventually to shorten life, either by its immediate effects or by

the other diseases which accompany or follow it. It of course leads to invalidism by preventing locomotion; diabetes mellitus often supervenes upon it; albuminuria is extremely common with gouty subjects and congestion or cirrhosis of the liver frequently exists with, or follows gout; various diseases of the eye also (iritis especially) are spoken of by many authors as caused by this agency, as are also certain skin diseases, for instance, eczema. In alluding to these various maladies I do not of course intend to give a complete list of all the disturbances of health that may arise from or follow gout, but do desire to emphasize the fact that it is a fertile source, or at least precursor of many disturbances of health, and of those too that exercise a very marked effect in shortening life.

For these various reasons, then, whilst it may not be necessary to reject every applicant in whose history there are indications of a gouty diathesis, yet it must be plain that extreme care must be employed in accepting any such risk, and grave apprehensions cannot but be entertained concerning them. I therefore advise that applicants should be rejected who have had one or more attacks of clearly marked gout, especially if it has already occurred in the family, or if the applicant uses wines or beer as a beverage, which is undoubtedly the most potent factor in the production of gout, leaving out of the question the matter of inheritance.

Of the cases mentioned in the beginning of this article the one died of acute gastritis, attributed to indiscretion in eating, and the other of congestion of the brain with delirium and coma, in less than eight months after his admission. The former was fifty-four years of age, and the latter nearly forty.

I had written thus far when my attention was attracted to an article by Dr. Stephen Fiske in the *New York Medical Examiner*, who, after speaking of certain restrictions which were formerly placed on life insurance, but no longer exist, says that time, common sense and experience have removed many of these restrictions, and that more latitude or a universal life insurance will soon follow. He says nearly every company debars those who obviously inherit or have already developed gout or rheumatism. In spite of this Dr. Fiske says that his experience has been largely with actors and politicians, who are proverbially prone to gout and rheumatism, but who are amongst the longest lived people, and he therefore thinks that these diseases will soon cease to be a bar to life insurance. Among English statesmen he thinks gout and rheumatism are as common as dyspepsia is with Americans. To prove his assertions he names Palmerston, Disraeli, Granville and Gladstone as statesmen, and the

elder Walleck and Davenport as actors. He says, "the former turn night into day, eat irregularly, make their greatest speeches after midnight, and sit in close, crowded halls; yet outlive Americans. Actors pass their nights in part in badly ventilated dressing-rooms; go from there to a cold, draughty stage, breathe noxious gases, eat scant dinners and late suppers, where they are popularly supposed to drink heavily; yet statistics prove that they live longer than the average man."

To all this the reply is obvious: that it proves too much. It is a part of the same fashion that within a year or two was leading certain prominent medical examiners of insurance companies to declare that men with heart disease ought to be accepted as risks because many men with heart disease lived to be old, and that men with albuminuria might be accepted because many of them also held out as long as healthy men, and that men with hereditary tendencies to consumption ought not to be rejected on such insufficient reasons.

The whole course of reasoning proves, if it be accepted at all as proof, that it is of no use to try to make a selection of healthy lives when men with diseased lives sometimes out-live them, and that all our endeavors to keep out invalids and sick people are thrown away. This we cannot believe, for a thousand facts and histories prove it false and ridiculous, and the whole history of the Arcanum as compared with some other orders bears evidence to the value of strict medical examinations. To think otherwise would be to agree with the witticism of Dr. O. W. Holmes, who is reported to have said that in order to live long one should contract an incurable disease, and then live up to its requirements.

SUBORDINATE MEDICAL EXAMINERS.

In previous years it has seemed right to me to make free expression of my belief that our subordinate medical examiners, as a rule, are faithful, conscientious and skilful men who try honestly to do their duty by the Order, and whose examinations are thorough and whose judgment of the character of risks is carefully formed and of value. The same can I believe be again truly said without conferring on them any undue meed of praise.

There have been, however, during the past year several instances in which deaths followed so soon after the full recommendation of an applicant by the local examiner that there has seemed good reason to think that the examiner was either unskilful, careless or dishonest. For this reason the Acting Supreme Regent has directed that an inquiry should be instituted respecting the general ability,

care and faithfulness of each subordinate examiner and his method of performing his duties. This inquiry is now going on and will possibly lead to changes in our medical corps, and its increased efficiency in consequence. Every effort will be made to do no injustice to any one, but at the same time some men may certainly be exchanged for better ones.

STATE MEDICAL EXAMINERS.

Nothing need be added to what has been said in previous reports concerning the endeavors of these gentlemen to do all they can for the good of the Order and to comply with its laws. In one instance only, so far as I have observed, has one of the Supervising Examiners approved an application that the law had declared ineligible, and in this instance the applicant gave every indication of good health and every promise of long life. He died, however, in a few months after admission.

The relations between the State Medical Examiners and the Medical Examiner-in-Chief have not only been uniformly courteous but friendly and cordial.

CONCLUSION.

My grateful thanks are due to the Committee on Finance for engaging and furnishing for me a suitable office outside of my house for the proper transaction of this business. It has been of material advantage to me in my work. To my old friend, the Supreme Treasurer, also I am as ever thankful.

The Supreme Secretary has, as in other years, lent a helping hand to me in all emergencies, given me clerical assistance, placed in my hands copies of official papers whenever they were needed and always been courteous and obliging.

My sincere acknowledgments are herewith tendered to the Acting Supreme Regent for his careful attention to every suggestion offered, for his great and faithful interest in all the work of medical examinations and the discretion and ability of all his rulings thereon.

To the memory of our late Supreme Regent words cannot do justice; one tender word after another has been uttered to his memory, and with a modest but a warm heart I add but one leaf to his laurel chaplet. May the members of this great Order ever keep his memory green!

Respectfully submitted in V. M. C.,

JOEL SEAVERNS, M. D.,

Medical Examiner-in-Chief, R. A.

SPECIAL REPORT OF THE SANITARY CONDITION OF WEST TENNESSEE.

The Supreme Council at its last session in 1891 passed the following resolution directing the Medical Examiner-in-Chief to make inquiry as to the healthfulness of the climate and country in the western part of the State of Tennessee :

Resolved — “ That the Medical Examiner-in-Chief be requested to make a thorough investigation of the sanitary condition of that part of Tennessee lying west of the Tennessee River, and now proscribed territory, and include the result in his next annual report.”

It had perhaps escaped the notice of many of these members that this very subject had been reported upon a few years since, in 1886, by a committee of which Supreme Regent Lindsley was chairman, which reported quite fully, entering into details.

I have reviewed the subject to a considerable extent, but fail to find any great amount of additional testimony with regard to the matter, and think that the evidence which was then adduced pretty fully covers the case.

That report took the ground that much of the territory therein described was upon the banks of the Mississippi and other large rivers, and from the nature of the conditions was not of a salubrious character, and that the history of that part of the State in the past had not been such as to warrant us in extending the benefits of our Order to it.

Attention was called to the marked mortality caused by yellow fever in Memphis in 1878, when the Arcanum lost twenty per cent. of its members there. Our experience in Memphis, where we have one Council, was stated to have been that we had lost twenty-three members by death in that Council and forty-four in all others, whilst we had but ninety-six members there as compared with 1103 in the rest of the State. It is proper to add, however, that a careful study of the death roll since shows that Memphis Council has not had an undue proportion of deaths, as she has since lost but four members, whilst other Councils have lost a hundred. The figures given by Meech in his “ System and Tables of Life Insurance ” were quoted

as showing that the experience of life insurance companies had been very unfortunate in the whole of Tennessee, especially in the western part; the probable loss bore to the actual loss a ratio of 100 to 163 in the whole State, and in the western part a ratio of 100 to 196, whilst in the eastern part it was 100 to 155.

It was stated that the New Jersey Mutual Life would take no risks west of Nashville. Dr. Curtis, Medical Examiner of the Equitable, of New York, at a public meeting in Washington, in 1880, said that in cases like Memphis they hesitated to do business at all.

The United States Tenth Census Report, as by figures prepared by Dr. Nickerson, the State Medical Examiner for Maryland, divided the State into four groups of counties—groups two and three west of the Tennessee, and groups one and four east of the river, and the deaths per thousand of whites in those west of the river were in group two 17.29, and in group three 25.78; whilst in those east of the river they were in group one 12.96, and in group four 14.64, thus showing that there was a death-rate west of the river of 21.53 to one east of the river of 13.80.

I have endeavored to get full copies of the reports of the latest United States Census of Tennessee, but have thus far failed to do so. I will, however, continue to extend my inquiries on the subject.

The experience of the Knights of Honor was also quoted as follows: That in 1884 there was one death to every 69.9 members in Western and one death to every 77.5 members in Eastern Tennessee, or 14.3 deaths per thousand in the former to 12.9 deaths per thousand in the latter. From January, 1885, to February, 1886, there were fifty-seven deaths in Western to forty in Middle and Eastern, or a death to every 55.1 members in the former portion, and a death to every 92.3 members in the latter; or a rate of 18.1 per thousand in the one to a rate of 10.8 in the other.

From all which it certainly appears clear that the ordinary death rate even in recent years is markedly higher in the western than it is in the eastern portion of the State. In connection with this we should remember that in the Royal Arcanum, Tennessee (even whilst we exclude all the western part of the State except Memphis) has always had a high place in the mortality list; thus in the present report she holds the third highest place in the list of deaths, last year the sixth, in 1889 the sixth, in 1888 the sixth, in 1887 the third, in 1886 the second, in 1885 the seventh, in 1884 the fourth, in 1883 the second, in 1882 the second, which is as far back as my record goes.

In conclusion, then, there can be no hesitation in saying that whereas Tennessee has never been a favorable or profitable part of the territory embraced in the limits of the Arcanum, even whilst the western part thereof has been excluded, and whereas by pretty general consent the western is less healthful than the eastern part of the State, it can hardly be to our advantage to extend our limits so as to include the less desirable portion.

Respectfully submitted in V. M. C.,

JOEL SEAVERNS, M. D.,

Medical Examiner-in-Chief, R. A.

